

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
Amendments of Parts 73 and 74 of the)	
Commission's Rules to Establish Rules for Digital)	
Low Power Television, Television Translator, and)	MB Docket No. 03-185
Television Booster Stations and to Amend Rules)	
For Digital Class A Television Stations)	
To: The Commission		

COMMENTS

The consulting engineering firm of du Treil, Lundin & Rackley, Inc. (dLR) respectfully submits these Comments in the above captioned proceeding relating to the amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations. dLR has provided consulting engineering services to the communications industry for over 60 years as well as to the LPTV industry since its inception in 1982. dLR understands that translators and LPTV stations will play a significant role in furthering the transition to digital television, and that viewers in many communities depend on the services of TV translator and LPTV stations for their over-the-air television service. As such, these Comments are being provided to assist the FCC in developing rules for digital low power television, television translator, and television booster stations, and in amending the Digital Class A television rules.

Paragraph 29

Permitting digital low power operations on TV channels 52-59 only when applicants could

demonstrate that no lower adjacent channels are available for their digital operations: dLR

believes that digital LPTV and TV translator operations should be permitted to operate on these

channels. However, demonstrating that there are no other lower channels available is too burdensome for applicants and the FCC to check. Since TV use of channels 52-59 will have to be vacated, and applicants are aware that they are secondary and will have to change, the proposed use of channels 52-59 is reasonable inference about lower channel availability.

Paragraph 30

Permitting digital low power operations on TV channels 60-69 only when applicants could demonstrate that no lower adjacent channels are available for their digital operations: dLR believes that digital LPTV and TV translator operations should also be permitted to operate on channels 60-69. It is known that these channels will have to be vacated, however, if a low power operation would like to operate on a limited time basis that should be fine. Once again, the proposed use of channels 60-69 infers no lower channels are available.

Paragraph 33

Digital LPTV and TV translator protected contours: At this time dLR believes the protected signal contours for digital Class A stations adopted in the Class A TV proceeding are also appropriate for digital Low Power and TV translator stations. The Federal Communications Commission (FCC) used the 28 dBu (low VHF channels 2-6), 36 dBu (high VHF channels 7-13) and the 41 dBu (UHF channels 14-69) noise limited contours to replicate full-service NTSC Grade B coverage. LPTV stations are protected to a higher value for each service band. Therefore, dLR agrees with the ratio approach that takes into account the differences in the protected contour values between full-service and LPTV NTSC stations. The following tabulates the current full-service NTSC Grade B contour values, the full-service DTV noise-limited contour values, the difference between these contours (in dB) which is used as the “ratio” to determine the appropriate DTV service contour for LPTV and TV translators, the current

LPTV protected contour values, and the proposed DTV protected contours for LPTV and TV translator stations.

(1) Service Band	(2) Full-Service NTSC Grade B Contour (dBu) F(50,50)	(3) Full-Service DTV Noise- Limited Contour (dBu) F(50,90)	(4) Difference Between (2) and (3) (dB)	(5) LPTV NTSC Protected Contour F(50,50)	(6) Protected DTV LPTV and TV translator Contour (dBu) F(50,90)
Low VHF	47	28	+19	62	43
High VHF	56	36	+20	68	48
UHF	64	41	+23	74	51

Paragraph 35

Digital LPTV and TV translator Protection Standards: The FCC requires that LPTV, TV translator and TV booster station proposals protect the noise-limited contour of authorized co-channel and 1st -adjacent channel DTV stations, therefore, dLR believes the Commission should continue this practice for digital LPTV and TV translator stations using the OET-69 method described below.

Paragraph 38

FCC proposes to apply the D/U interference ratios in 73.623(c) of the rules (Class A) for DTV LPTV and TV translators: dLR believes that since the DTV-NTSC desired-to-undesired (D/U) interference ratios for taboo relationships (+/- 2, 3, 4, 7, 8 and -14 & -15 channels) are already considered in the OET-69 programs, and because it is believed the required ratios will have minimal impact on channel availability, the D/U ratios for taboo channels should be applicable to digital LPTV and TV translator stations. Because smaller service and interference areas are created when analog (NTSC) and digital LPTV facilities are involved, it is recommended that a 1 kilometer cell size be adopted as the standard for OET-69 studies involving these stations.

Paragraphs 41-46

Interference Prediction Methodology (Contour Protection Method or OET-69 Method): dLR

believes that in order to maximize opportunities for digital LPTV and TV translator stations, the Contour Protection Methodology currently used for analog LPTV and TV translator stations be adopted for digital LPTV and TV translator stations. However, it is recommended that the maximum ERP at any horizontal and vertical angle be considered (i.e., not the radio horizon ERP). In addition, it is believed that when contour protection cannot be afforded, applicants should be permitted to employ the OET-69 Method without requiring a waiver.¹ dLR also believes the actual vertical antenna pattern (i.e., elevation pattern) and the maximum ERP at any horizontal and vertical angle should be considered when employing the OET-69 Method. This issue of vertical antenna pattern and maximum ERP is addressed below.

Paragraph 47

Modified DTV Prediction Model: dLR believes that the DTV Prediction Model needs to be modified such that more appropriate vertical antenna patterns are employed when analyzing digital LPTV and TV translator station interference potential. The default vertical patterns currently assumed in OET Bulletin No. 69 may be appropriate for full-service TV stations, however, they do not reflect typical LPTV and TV translator antennas. Therefore, it is proposed that that DTV prediction model be modified to incorporate actual vertical antenna patterns proposed by digital LPTV and TV translator applicants. This can be accomplished by either developing a database of “off-the-shelf” vertical antenna patterns² or by allowing the applicant to

¹ It is noted that OET-69 is only a processing tool for LPTV allocation studies. If actual interference occurs to regular off-the-air reception that is attributable to the LPTV and TV translator station, then the LPTV or TV translator station must eliminate the interference problem.

² These “off-the-shelf” patterns could be defined by number of bays and electrical beam tilt.

provide the “composite” vertical antenna pattern.³ In addition, the maximum ERP at any horizontal and vertical angle should be used in conjunction with the actual vertical pattern described above for the OET-69 Method. Currently, the FCC considers the ERP toward the radio horizon for conducting interference analyses using the OET-69 Method. In some instances, using the radio horizon ERP underestimates the interference potential, such as when the protected service area occurs within the radio horizon, or when the proposed facility is located within the protected service area. Therefore, utilizing the maximum ERP at any horizontal and vertical angle instead of the radio horizon ERP, along with the actual antenna vertical pattern, will permit a more accurate determination of interference potential using the OET-69 Method.

Paragraph 49

Should the revised version of OET Bulletin 69 be applicable to analog (NTSC) LPTV and

Class A: dLR believes that the revised version of OET Bulletin No. 69 should be applicable to analog LPTV and translator stations, however, facilities that are already authorized should be grandfathered. Additionally, OET-69 only considers cross-modulation interference and not intermodulation interference. It is recommended that the model be revised for consideration of intermodulation interference.

Paragraph 50

Interference Agreements: dLR believes that with regard to interference agreements, the provisions already set forth for analog LPTV and TV translators should be applicable for digital LPTV and TV translator stations.

³ Composite vertical antenna pattern data could be provided as part of the transmitting antenna specifications in the Tech Box of the application, in a format similar to that used for full-service stations.

Paragraphs 51-56

Co-located Operation on Adjacent Channels: dLR believes that in order to facilitate channel availability, adjacent channel co-location should be permitted. In addition, interference analyses should be based on the OET-69 Method. Applicants should demonstrate that the required desired-to-undesired (D/U) ratio is met using the actual vertical antenna pattern along with the maximum ERP at any horizontal and vertical angle. It is proposed that a distance of two (2) kilometers to be used in defining co-located facilities.

Paragraph 57

Other technical means for demonstrating interference avoidance: dLR believes that Class A stations, low power stations and TV translator stations should be required to operate with a carrier frequency “offset” for its NTSC operation.⁴ This will permit minimization of interference and maximization of service. In order to control co-channel interference and maximize spectrum usage, the FCC allots full service NTSC TV assignments with an offset designation. All full service NTSC TV assignments have an offset designation. However, not all LPTV & TV translator stations have a designated offset.⁵ When an LPTV station has no offset, then the FCC’s more restrictive interference standards must be employed, namely, a desired-to-undesired (D/U) interference ratio of 45 dB. This same ratio is employed if the LPTV stations under study have the same offset. This ratio not only applies to interference caused, but also impacts interference received (i.e., the proposed service area). However, if the stations employ different offsets, then a more relaxed D/U interference ratio of 28 dB can be used. Not only is

⁴ Offset operation is permitted by Sections 74.705 and 74.707 of the LPTV rules as a means for limiting interference. The possible offsets are the same for full service NTSC TV stations: zero(0), at the standard carrier frequency for the channel; plus(+), with the carrier frequency 10 kHz above the zero offset carrier; and minus (-), with the carrier frequency 10 kHz below the zero offset carrier. The frequency tolerance of a LPTV station operating with a specified offset will be +/- 1 kHz, the same as the full service TV station frequency tolerance. The frequency tolerance for LPTV stations operating without a specified offset is +/-0.02% of the assigned carrier frequency for transmitters rated at no more than 100 Watts, and +/-0.002% of the assigned carrier frequency for transmitters rated at more than 100 Watts.

⁵ LPTV and TV translators are referred to as “LPTV” for the purpose of this paragraph.

interference protection still provided to the other station, but a reduction in interference received can also be achieved. Furthermore, a new offset for a station which had no previous offset can:

(1) foster a reduction in interference to other existing LPTV stations which could not be offset with it before; (2) permit increases in the facilities of stations previously not offset with each other (i.e., service improvement); and (3) permit new LPTV service to areas that were previously precluded due to the more restrictive D/U ratio. Hence, LPTV stations using offset, foster spectrum efficiency in an age of diminishing spectrum availability and increase TV service to the public. At the very least, low power stations should be required to accept offset, if paid for by the applicant.

Paragraph 61

Power limits: dLR believes the power limits should be clarified to reflect the maximum permitted ERP level at any azimuthal and vertical angle.

Paragraph 62-70

Out-of-Channel Emissions/Emission Mask: dLR believes that if applicants are permitted to use multiple emission masks, then the OET-69 Method should consider the emission mask utilized for adjacent channel interference analysis.

Paragraph 92:

Digital Conversion on Channels Authorized for Analog Service: dLR agrees with the Commission that analog LPTV and TV translator stations should be permitted to convert to digital on their authorized channels as a “minor” facility change, as long as (1) the proposed digital facility would not involve a channel change not related to channel displacement, and (2) some portion of the proposed protected digital contour would overlap a portion of the currently authorized analog protected contour.

Paragraph 109

Section 336(f)(4): dLR supports the Commission's proposed licensing scheme for digital channels for Class A, LPTV, and TV translator stations that is based on Part 74 of the rules. All DTV station's licensed under Part 74 would be secondary, regardless of the station's class (i.e., Class A, LPTV, or TV translator).

Paragraph 112

Minor Facilities Change and Displacement Relief Authorizations: dLR supports the Commission's proposal to use the "minor" change definition given for analog station minor changes to subsequent applications for digital LPTV and TV translator facilities. In addition, we also agree with the Commissions proposal to apply the LPTV displacement relief policies and procedures to digital LPTV and TV translator stations.

Paragraph 117

Application Forms: dLR believes that FCC Form 346 should be altered to (1) indicate the application is for digital service, (2) include vertical antenna pattern data (including electrical and mechanical tilt) and (3) specify an emission mask.

Paragraph 122

Interference Protection Methodology for digital boosters: dLR believes the OET-69 Method described above in Paragraphs 41-46 and 47 should be adopted for digital boosters.

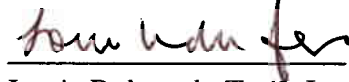
Paragraph 125

International Coordination Provisions: dLR supports FCC negotiations with Canada and Mexico to establish working agreements for digital LPTV and TV translator stations.

Paragraph 126

Use of Broadcast Auxiliary Service Frequencies: dLR agrees with the Commission that the Broadcast Auxiliary Service provisions should be extended to permit digital LPTV and TV translators to operate on the same bands and for the same purpose as analog and TV translators.

Respectfully submitted



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